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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,744	06/29/2004	Yoshifumi Kachi	039.0024	4639

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EXAMINER
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PAIK, SANG YEOP

ART UNIT	PAPER NUMBER
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3742

MAIL DATE	DELIVERY MODE
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05/15/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/501,744

Applicant(s)

KACHI ET AL.

Examiner

Sang Y. Paik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date 3/8/07.

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoh et al (US 6,761,771) in view of Aruga et al (US 5,688,331) or Soma et al (US 5,231,690), and Storbeck (US 2002/0023590).

Satoh shows a ceramic susceptor claimed including a ceramic substrate made of aluminum nitride, a shaft, a resistive heating element made of tungsten and a plasma electrode formed interior of the ceramic substrate, and a concavity formed in the wafer-carrying face. But, Satoh does not explicitly show that the shaft is a pipe-shaped shaft and the claimed range for the concavity.

Aruga and Soma show that it is well known in the art that the shaft is made of a cylindrical pipe-shaped shaft is joined to the substrate. It would have obvious to adapt Satoh with the shaft made of a pipe-shaped shaft to not only support the susceptor substrate but also to encase connecting electrical terminals to the heating element and electrode thereto

Storbeck shows a susceptor having a concavity larger than .2mm or .5mm over the surface of the substrate having a 300mm diameter, and Storbeck teaches that such concavity would allow a more stably situated wafer on the heating surface during the heating process. In view Storbeck, it would have been obvious to one of ordinary skill in the art to adapt Satoh with

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the claimed concavity as the initial concavity to allow a more stable and uniform heating operation to heat a wafer.

With respect to the recited shaft being disposed to warp the substrate in the controlled manner so as to decrease the concavity of the wafer-carrying face, Satoh having the pipe-shaped shaft, as modified by Aruga, would have inherently performed the recited controlled manner as the substrate goes through the heating process for heating the wafers, and the recited curvature of claim 10 when the substrate is heated to 500° C would also have been inherent functions or characteristics as the prior art having the substantially identical structure as that of the claimed invention (see MPEP 2112.01).

### ***Response to Arguments***

3. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

The claimed recitation includes a pipe-shaped shaft, but this is shown to be old and well known in the art as shown by the newly applied art Aruga or Soma.

The applicant also states that there are two mechanisms describing how the concavity of the wafer-carrying face decreases during the heating of the substrate. One mechanism is the result of heating the substrate in a temperature difference between the wafer-carrying face and the opposite face of the substrate due to the thermal conductivity of the shaft, but it is noted that the claims do not recite such temperature difference due to the thermal conductivity of the shaft. The second mechanism relates to the temperature gradient along the length of the shaft, but it is also noted that there is no such claim recitation in the claims.

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sang Y. Paik whose telephone number is 571-272-4783. The examiner can normally be reached on M-F (6:30-3:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

S. R.

Sang Y Paik  
Primary Examiner  
Art Unit 3742

syp